

**2002 Energy Efficiency
Program Selection
R. 01-08-028**

**Energy Efficiency Proposal
For
Residential Metering and
Management System Pilot**

US Power, Inc

January 2002

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Proposal for: Intelligent Metering and Energy Management System

1 Introduction

We are pleased to submit this proposal to conduct a pilot trial project utilizing the outcome of the "CPUC Study Proposal from US Power" and apply it in a carefully monitored and controlled pilot system using Intelligent Metering Systems (IMS) Intelligent Metering and Management System over a one (1) year trial period.

The intention of our proposal is to validate the field proven Intelligent metering and management system from Intelligent Metering Systems (IMS), proving that it will provide for long term benefits and savings as well as realizing initial energy saving during initial and early stages.

To cater for long term and associated unknowns, our solution has been specifically designed to allow for future expansion and enhancements. What is unique about our solution is that we provide a complete "one stop solution", in that we provide for energy measurement, energy management, smart demand management, metering of consumption, outage management, service connect / disconnect, consumer budgeting assistance, Time of Use (TOU) metering, billing and interaction between consumer and supplier. From our experience, consumer education and satisfaction are paramount to the success of any system. Our system provides for consumer education as well as allowing consumers to verify their consumption at will.

1.1 Need of user

Although the Intelligent Metering Technology Framework (IMTF) was developed in the US by US Power, the first implementations occurred in South Africa by IMS to address the needs of a huge electrification program mandated by the South African Government, principally targeted at low income housing. While the social economic situation in South Africa is substantially different to that of the US, the functionality of the IMS technology framework can solve non payment and theft of power on one hand, while addressing energy efficiency and load management on the

other. The IMTF is presented in the CPUC study proposal from U.S. Power.

Originally the user – mainly municipal utilities and Investor Owned Utilities (IOU) ESKOM (in South Africa), and utilities world wide, relied on manual meter readings and in instances where the meter could not be read, estimated readings. These readings were used to generate energy bills, which were then posted to the consumers and eventually paid by the consumer. This cycle normally takes approximately three months from the time the energy is supplied until the time the bills are paid. Also, due to the manual processes the expenses for such services were extremely high.

It was obvious that this state of affairs could not be allowed to continue and that a better solution was needed. The first step in this direction was the introduction of short-range radios on the meters, which were then read by a drive-by radio receiver and the readings supplied to the financial department for billing in the normal way. This improved efficiency and reduced costs but it was obvious that this was only a small step towards a complete solution.

Thereafter the automatic meter reading was introduced where the meters were read electronically via radio and the readings downloaded to the financial system automatically. The rest of the processes were again as before. This further increased efficiency and reduced costs. The next step was the introduction of the prepayment system by ESKOM in the late 1980's, which had some limited successes but failed to resolve all the problems in South Africa in particular, the non-payment culture in the early 90's.

IMS was the first company in the world to introduce a residential consumer only AMR with normal payment or pre-payment modes utilizing true two-way communications, as well as supervisory and control of the network with on-line checks of meter readings and alarms. IMS introduced the first consumer information units with load control and outage detection. This system answered most of the customer requirements as well as the utility

requirements. In fact, the system was so successful in addressing both the utility and customer requirements and improved efficiency to such an extent, including solving the non-payment culture, that ESKOM and the South African Bureau of Standards (SABS) Design Institute awarded IMS, together with the Kempton Park/Tembisa Council, the Energy Efficiency or ETA award.

U.S. Power conducted a world-wide study of utility markets including utilities in the United States, Europe and the Far East. Consequently, U.S. Power gained excellent knowledge of customer requirements within the different utilities. Whilst many of these requirements are common, on many occasions customers have additional requirements for their particular needs. It is for this reason that U.S. Power urged IMS to develop their second generation system. The IMS second generation system includes all the functionality of the first generation system and addresses further utility requirements meeting their different needs, some of which are listed but are not limited to the following:

- The new system addresses the need for residential, commercial and industrial consumers – i.e. a “one stop solution” for all metering solutions.
- Smart load management
- Smart energy management facilities.
- Outage management
- Energy loss detection – Power Theft, Faulty network / equipment
- Service connect / disconnect
- Flexible payment methods – Traditional or prepayment:
- Consumer budgeting assistance
- The system is data base independent and is designed for ease of maintenance, either locally or remotely to allow the customers to use their legacy systems and have access to professional resources from outside.
- The system has financial and technical reports for management on a daily basis so that management can take the appropriate action

at a very early stage to improve efficiency, revenue collection and thereafter, profitability.

- The system makes provision for customers to have access to all relevant information regarding their energy management to enable them to introduce systems to control their energy use and therefore improve their own efficiency and profitability.
- The system is designed to accommodate other requirements by the customer such as time of use tariffs, site management purchases of energy over the internet and planning, and other requirements as may become evident in the future.

The product will enable IMS to easily deploy and maintain their energy management system across any platform, interface to any existing legacy systems, provide easy access to all data and generate reports by drag and drop methods. In general, the product will allow standard education personnel to utilize the system with maximum efficiency.

Before IMS, no system existed that could achieve the functionality mentioned above. Utilities worldwide have been demanding that a system of this type be made available on the market but for many reasons, both technical and commercial, none existed before the introduction of IMS.

2 Program Overview

Our proposal is to apply the results of "CPUC Study Proposal from US Power" by using the Intelligent Meter Reading and Management solution provided by Intelligent Metering Systems (IMS) for a one (1) year trial period.

2.1 Description and Objectives

This proposal seeks funding for installing and implementing a trial project using Intelligent Metering Systems (IMS) Intelligent Metering and Management system. The trial project is to be run under the conditions as determined by "CPUC Study Proposal from US Power"

The budget for this program is \$1,781,600.00. The target market segments are single family residential customers within areas defined in the study produced under the "CPUC Study Proposal from US Power".

The pilot trial objective is to prove viability of IMS Intelligent metering and management system to address:

a) Long-Term Annual Energy (Gas and Electric) Savings

The IMS system will provide for long term benefits and savings as well as realizing initial energy saving during the pilot phase.

To cater for long term and associated unknowns, our solution has been specifically designed to allow for future expansion and enhancements. What is unique about our solution is that we offer a complete “one stop solution”, in that we provide for energy measurement, energy management, demand control, metering of consumption, billing and interaction between consumer and supplier and most important the flow of information of real time conditions between consumer and supplier.

Savings must be considered from both the Utility point of view as well as the client's. Utilities have invested heavily in plant to meet the requirements of their clients and good return on the money invested is to be expected. It is advantageous that the plant be used at near full capacity as possible, as this will give maximum efficiency.

Present day load control is very inexact. When a utility wants to reduce their maximum demand, very few know exactly where the loads are. The information they use to make decisions is based on aggregated load data measured at the substation level. In a situation where they need to shed 5 MW, they might trip out a whole neighborhood, or they will schedule the load control to start shedding load until they meet the objective. A preferred method would be to know exactly where the loads are, and to signal non essential loads to disconnect in a predetermined and timely sequence to meet consumer and utility requirements. The same applies for reconnection of loads which can now be in an orderly manner so as not to overload the system when all loads are brought on together. Accurate and relevant information will allow operations to have more precise control of their network reducing their safety margins and spinning reserves. This translates directly into

significant energy savings, reduced fuel costs and enhanced profitability.

In addition, the utilities can defer capital expenditure, which on a net present value basis represents a huge saving in future capital expenditure. One of the unsubstantiated benefits is the reduced likelihood of a blackout, which in turn reduces the likelihood of mob violence, looting and rioting. The benefit to society cannot be ignored.

Reduced risk directly translates into a reduced cost of doing business, and hence improves profitability for all parties.

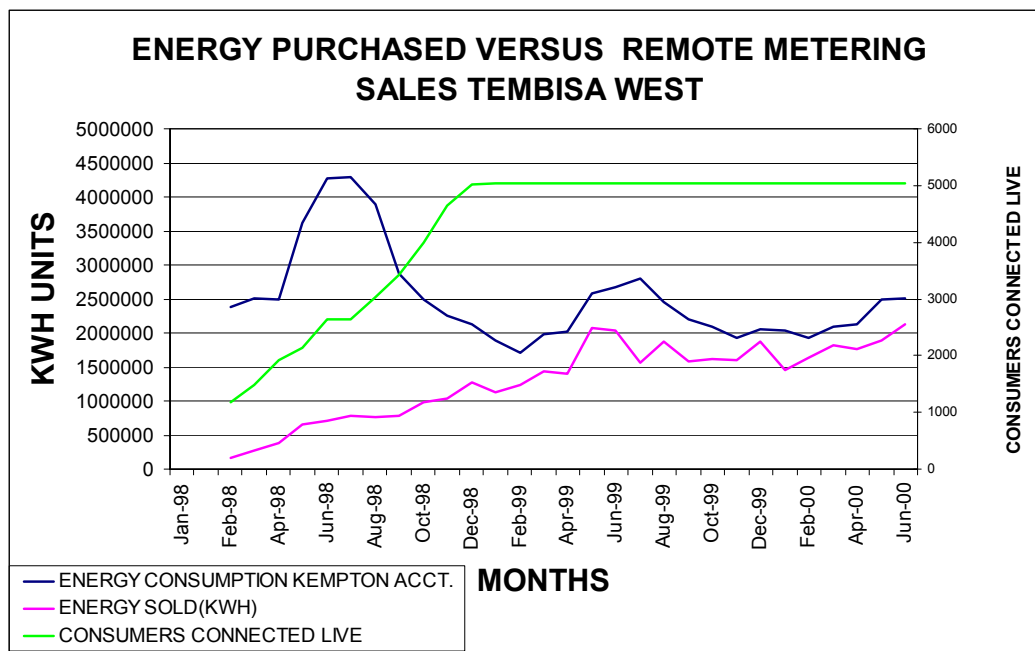


Figure 1 Graph showing effectiveness of IMS system

Figure 1, above depicts results from a typical installation of IMS system in South Africa.

b) Cost Effectiveness

The IMS System, by controlling and managing energy usage will extend the present plant capacity to meet future requirements for the next 10 years or more at a fraction of the cost of a new plant.

Therefore the estimated savings as shown in table 4 described in document "Calif-Policy Manual, 3rd Party CPUC01-#111209-v1-

R0108028_.doc” are applicable. The estimated cost of the IMS system, for 50,000 consumers or more, is \$300.00 per connection all inclusive. It is conservatively estimated that the system will pay for itself in less than three years, although experience has shown that some systems already installed are paid for in approximately one year.

c) Addressing Market Failures or Barriers

Higher start-up expense for high-efficiency measures relative to standard-efficiency measures

Our long term proposal is to form a service company that will provide for service to landlords, tenants and utilities. It is our intention to form this service company together with various utilities, institutions and private investors (as venture partners) and charge a service fee for the management of the network as well as presenting the bills and collecting the revenues for energy sold. This model will provide for zero or close to initial startup costs to the utility and consumers alike.

The aim of the pilot project is to prove real life viability of this business. It is expected that the return on investment will be more than sufficient to make this project an exceptional opportunity for a low risk, high benefits, investment for the Utilities, , institutions, and the private sector

Lack of consumer information about energy efficiency benefits

As previously mentioned, one of the greatest problems with the present day situation is lack of information provided to the consumer. Our solution provides continuous information right to the consumer's premises via our Remote Display Unit (RDU). An additional feature of our system is not in just providing additional information, but providing it in such a manner as to educate consumers regarding their energy consumption, cost of energy, budgeting and other features such as automatically controlling, saving or shifting power.

Lack of financing for energy efficiency improvements

Our model does not require financing from the clients. The finance is supplied by the service company on a built, operate and transfer basis over, let's say, a contract period of 20 years.

During the pilot trial, the aspects of providing incentives to consumers to purchase other high efficiency products will be evaluated for inclusion in a final report.

If we go the service company route we could offer incentives to consumers who install recognized and approved energy efficiency appliances.

As the IMS system provides such a wealth of features and benefits to both consumers and suppliers, financing should not be a problem due to the savings to be realized.

Split incentives (between owners/landlords and tenants)

Our solution will provide for direct sub metering of tenants, enabling the landlords to accurately bill their respective tenants and thus improve the level of service. This alone would make the majority of tenants much happier as they will be able to verify their energy consumption. In addition, the landlords (and tenants) will have up to date information about consumption which will allow them to put additional energy saving measures into practice.

Lack of a viable and competitive set of providers of energy efficiency services in the market

Since the proposed new company will provide/combine all energy efficiency services and finance all the cost, the lack of other viable competitors is no longer an issue.

All the different parties can benefit from the savings by purchasing stock in the service company. It is envisaged that the service company will become a public company where any institution or individual can purchase shares and therefore benefit from the saving achieved.

Lack of availability of high-efficiency products

Whilst consumers cannot be forced to go out and purchase new energy efficient products, they can be made aware of what the consumption of said devices are. Our system, via flashing LED's and consumption monitoring displays on the RDU will indicate the consumer's rate of energy consumption. It is felt that once the consumer is armed with knowledge, they will be more aware of what cost savings can be achieved by making use of high efficiency products as and when these products become available. Appliance manufacturers are bound to follow the demand of the consumers and as the consumers start becoming more and more educated about energy usage it is fully expected that they will start making these demands.

d) Equity Considerations

Our system is ideal for hard-to-reach markets in that it has been specifically designed to cater for such markets. The proposed system uses easy to understand visual indicators which indicate state of system and current consumption level. It has been our experience that such markets often feel that they are being exploited (and some times they are!) and have a major distrust for any system installed to control and manage their load and provide billing. Our solution provides for flow of information between utility, landlord and tenant to educate all parties, provide for auditing functions to ensure correct billing practice and to generally ensure that the level of service and trust is assured.

The proposed system will benefit all clients equally. Programming of the system can ensure that benefits are divided as dictated by the outcome of proposal "CPUC Study Proposal from US Power".

e) Electric Peak Demand Savings

Our proposal will continuously monitor and advise consumers about their present status. If the consumer decides to enter into a more proactive solution (for financial benefit) we will be able to monitor and control their load in such a manner as to maximize their efficiency as

well as reduce load demand. Such a solution will be ongoing and will be continuously updated to maintain expected savings over a lifetime.

The system after all the local conditions have been examined, will be able to defer non-essential load during the electrical peak demand and thereafter, even out the load curve. At the same time, the need for excessive reserve spinning of generators will be reduced. Other measures can also be taken to even fluctuation of the load curve almost automatically by utilizing wasted energy to produce hydrogen which can then be used in fuel cells to assist in times of peak demand. Another process known as a biomass reactor, which converts biomass to carbon fuel cells can also be employed during non peak periods. The carbon fuel can then be used to generate electrical power for rural electrification needs. Biomass Carbon Fuel generators are available in 2 KW and 300 KW versions. For further information on the biomass generators, please email John Synesiou at jsynesio@us-power.com. What is important here is that the IMS system can utilize and control all these devices into one comprehensive homogenous system to maximum efficiency.

f) Innovation

What is unique to our solution is that we address several areas in one solution. We have taken a more holistic approach and have made use of economy of scale to enable a cost effective and flexible solution to meet the growing demands of the industry.

The IMS “system in one system” provides for:

- Remote Metering
- Sub Metering
- Billing
- Energy auditing and balancing
- Load balancing
- Remote connect/disconnect facility
- Smart Load control
- Open scalable system that can interoperate with other vendors

- Outage detection
- Multi tariff support
- And other features identified in the future

g) Synergies and Coordination with Programs Run by other Entities

IMS enables open access all the way down to the residential consumer. The issue of who owns the infrastructure will no longer be an impediment to installing a system such as IMS, since the IMS system can service any number of utilities/energy providers and all the consumers.

As mentioned previously, the IMS system also integrates all other saving programs and equipment into one homogenous efficient system.

2.2 Target Market Segments

For purposes of this proposal we intend targeting a cross section of residential consumers as identified by "CPUC Study Proposal from US Power". It is important to include a suitable cross section of consumer base, in large enough numbers, in order not to taint the results with desired results.

The IMS system targets all the consumers of energy across the board which includes residential, residential hard to reach, large and medium industrial and commercial, small industrial and commercial and very small industrial and commercial.

2.3 Barriers

From experience, one of the greatest market barriers to lack of success in energy efficiency drives amongst consumers, is lack of education and information. Energy providers on the other hand often lack detailed information as well as methods to manage and control their loads.

It is our intention to address these issues during the trial period via a detailed and complete marketing campaign as concluded in "CPUC Study Proposal from US Power".

By educating consumers (residential, commercial, industrial, agricultural, etc) and providing incentives, consumers will modify their behavior to be as efficient as possible. Present day consumers tend to view the energy bill as a fixed expense, with the IMS system they will soon see that they have many opportunities to implement saving schemes and predict what their consumption will be – a major incentive in itself. Very few consumers will knowingly waste energy, but due to lack of information most are not even aware of their wasteful habits. In other words, the premise is that an informed consumer will always be more energy efficient than an uninformed consumer. Another way of articulating this problem is that a consumer cannot control what they are unable to measure. For example, if a consumer is provided a display that predicted their next billing based on their historical load profile, studies have shown that the consumer will adjust their current consumption patterns to match their budget. This could apply equally to corporations attempting to manage their costs as well as low income homes living on a tight budget. Another benefit is the comparison to the average consumption of similarly sized premises. This will enable consumers to do benchmark comparisons to other comparable consumers (base lining). When consumers learn that their appliances are much less efficient than available high efficiency devices, they can calculate the potential savings, and hence determine their rate of return (ROI) should they upgrade to more efficient appliances.

3 Program process

3.1 Program Enrollment

For purposes of the pilot trial, program enrollment will be determined by proposal "CPUC Study Proposal from US Power".

It would be a marketing function to prepare all the literature so that the customers can be informed of the scheme and of the potential savings if they participate themselves. There will be no cost or inconvenience to the customer and in fact, the customer will have many benefits such as much shorter outages if any at all, will be fully informed at any time of all the circumstances of his consumption, bill, tariff costs, etc. and of course, the most important of all, the fact that each consumer will have monetary gains. This should be good incentive for all consumers to enroll in the

program. Nevertheless, nothing works better than a good marketing team for good sales.

3.2 Marketing and Outreach plans

From our past experiences, community involvement and acceptance is of paramount importance and as such the pilot program will allow for education on energy usage, energy saving and energy efficiency options to participating consumers.

Marketing of the system is important in order to gain consumer awareness, acceptance and trust. The marketing and outreach will be aimed at drawing on a large cross spectrum of organizations, energy users, suppliers and distributors as identified as suitable candidates by "CPUC Study Proposal from US Power".

3.3 Procedures for equipment purchase or installation

The payment with respect to the consultancy/study for the use of the IMS system to achieve the necessary savings, will be charged on an hourly basis, invoiced monthly. 15% can be deducted as security from each invoice as suggested. Once the value of the saving has been established then a contract can be negotiated based on the information given in this proposal on the following terms and conditions:

Order of pilot system will require a 25% down payment

When the equipment is delivered, another 15% payment will be required

When the pilot system is installed and commissioned, another 25% payment will be required

On verification of the savings, another 20% payment will be required, bringing the total to 85%.

Once the system has been fully approved by the authority, the remaining 15% will be payable.

3.4 Processes for payment of incentives to customers

Once the study has been completed and all the savings calculated, a decision will have to be made between all concerned as to what

percentage of the savings will be passed to the utilities and the customer, and what percentage must be retained by the service company to make it attractive and profitable. Once all these calculations have been completed and agreed upon, the system will be programmed to deduct a certain percentage of the bill as an incentive to the consumer.

4 Customer Eligibility

In order to conduct a complete and successful evaluation we would need to target various consumers from a cross segment of the population. The IMS system does not distinguish between income levels or ethnic populations. Rather it is a tool that can be configured to best implement the desired system operation.

For any system to be a success it also needs to be accepted and trusted by suppliers and consumers alike. One of the aims of the pilot project is to determine from a cross segment of consumers and suppliers alike their reaction, needs, wants and concerns regarding energy management systems and schemes. This will allow us to tailor our approach and draw up a recommended strategy outlining the required operation of the IMS system and service company entities for implementation in the broader field.

From research conducted to date, there is a major need for sub-metering functions to enable landlords/building owners to individually bill their tenants.

5 Cost-Effectiveness Calculations

The IMS System, by controlling and managing the energy usage will extend the present plant capacity to meet the future requirements for the next 10 years or more at a fraction of the cost of a new plant.

The estimated cost of the IMS system is \$300 per connection all inclusive for contracts of over 50,000 consumers. The system will also optimize energy savings within the clients' premises. It will recover some of the energy losses and will certainly recover any energy theft. By early detection of outages, the system will reduce the time of such outages which will benefit the consumers and utilities alike. The utilities stand to

gain as any outage time is a major loss in revenue for them, not to mention the inconvenience to both parties.

On a similar system that is installed in Nelspruit municipality in South Africa, Intelligent Metering Systems has calculated a savings of 13.7% in revenue. As the two models are similar and there are additional features that can be implemented, we expect savings of at least this amount.

5.1 Summary

There are no cost-effective calculations with this proposal as this input will depend on results obtained from "CPUC Study Proposal from US Power".

From past experiences the IMS system has brought about tremendous savings in areas where installed in South Africa. The system itself is extremely flexible and the intention of this proposal is to apply the outcome of "CPUC Study Proposal from US Power" and prove the viability of the IMS solution as well as to tailor a specific plan to ensure a better understanding of the energy market in a modern day deregulated environment, as well as lay the ground work for future successes in the energy industry.

6 Program Performance Goals

During the pilot trial, the IMS system and its auditing functions will be used to capture readings, manage network, provide consumers with a flow of information and provide an on ongoing basis of consumer education.

In order to accurately gauge performance goals we need to manage, monitor and collect data as well as continuously refine the system configuration in order to maximize energy efficiency.

7 Evaluation, Measurement and Verification Plans

Evaluation and verification plans will be drawn up once the information provided by "CPUC Study Proposal from US Power" is made available.

8 Budget

It is estimated that hardware costs will be around \$300.00 per consumer connected to the pilot trial system (inclusive) and that we would require a

minimum of 1500 consumers to accurately gauge the results of the pilot trial. For purposes of the pilot project we are prepared to provide the software free of charge for the duration of the pilot project.

Item	Description	Hours	Qty	Unit Cost	Cost
1	Hardware		1,500.00	300.00	450,000.00
2	Project Manager	520	1.00	150.00	78,000.00
3	Engineering Manager	1,040	1.00	120.00	124,800.00
4	Engineers	2,080	1.00	100.00	208,000.00
5	Technicians	2,080	2.00	75.00	312,000.00
6	Admin Staff	2,080	5.00	37.00	384,800.00
7	Outside Consultants				224,000.00
Total Cost					\$1,781,600.00

Table 1 Pilot Project Budget

9 Description of Implementer's Qualifications

9.1 Company History and Background

U.S. Power and IMS are members of the Thermphase group of companies. U.S. Power instituted Intelligent Metering Technology Framework. U.S. Power has a wide range of experience in the electrical and electronic fields covering communication, energy measurement and load control, which provided the basis for IMS to provide total system solutions to meet the most stringent customer requirements.

Because the Group's employees have kept abreast of state-of-the-art technology, we have accumulated vast experience over the past 20 years in both hardware and software developments. This has enabled us to provide effective and reliable solutions.

When the massive electrification program was implemented in South Africa some eight years ago, we decided to enter the field of electricity metering to design and produce a prepayment system for the local market. Due to a lack of in-house technology we joined forces with Landis and Gyr and their local agent, Ash Brothers. A new company, Ash Electronic Industries was formed and this venture provided the local market with the best prepayment meter available. The brand name chosen for the meter

was “Budgy” and several models were introduced to meet the changing specifications of the utilities.

Intelligent Metering Systems (IMS) was formed from the consolidation of two Thermphase companies, namely Ash Electronic Industries and Andronics (a technology solutions provider).

Following international trends in metering, IMS took a strategic decision to enter the overseas market and invest in further development of the next generation meters for utilities.

Our efforts proved successful when a local utility, Kempton Park/Tembisa Metropolitan Substructure awarded us the largest Intelligent Metering project worldwide. The value of this contract today is over R55, 000,000.

The project was completed in 1998 and has proven to be successful and acceptable to both the utility and the local consumers. Please refer to the following graph and award.

This latest development has put our company in the unique position of being the only suppliers worldwide of both conventional stand-alone meters and a remote metering system.

Our intention is to further develop the product line and service other large utilities together with strategic alliances / distribution partners around the world.

The largest site deploying the IMS technology is the Utility Management project at the Kempton Park / Tembisa Metropolitan Substructure. Based on the success of this project, it was extended into adjacent areas..

a) Past project and successes

Past Projects	Description	Consumers
Kempton Park Municipality	Supply, installation & commissioning of a Remote Prepayment Electricity System	45,000
Lethabong Council	Supply, installation & commissioning of a Remote Prepayment Electricity System	10,000
Johannesburg Metro Electricity	Supply, installation & commissioning of a Remote Prepayment Electricity System	1,500
Messina	Supply, installation & commissioning of a Remote Prepayment Electricity System	450

b) Present and Future Projects

Present/Future Projects	Description	Consumers
ESKOM (SOWETO ONLY)	Expecting order for test site ± 5000 consumers	130 000
PORT ELIZABETH	Submitted Tender	200 000
ALBERTON	Tender submitted for ± 1000 consumers	10 000
MESSINA	Test site completed, go ahead with rest of site on council approval	10 000
JOHANNESBURG	Further discussions for additional area 2-3 months	50 000
WITBANK AREA	Discussion and presentation 1-2 months	50 000
NELSPRUIT	Awarded Nelspruit contract	10 000
PRETORIA	Submitted proposal for test site – waiting for council decision	200 000
KOSH (KLERKSDORP)	Council resolution taken to implement IMS system	93 000

c) Personnel resumes or description of relevant experience

IMS employs technically qualified personnel to conduct its research and development activities. The R & D project management team consists of the following personnel:

Name	Qualification	Years Experience
Colin Bester	BSc (Hon) Eng (Elec) Pr.Eng	16
Travers Snyman	MSc Eng (Elec)	15
Steve Mahoney	BSc (Computer Science)	14

Table 2 Management Team

The remainder of the R & D team:

Name	Qualification	Years Experience
John Longland	B.Eng Pr.Eng	15
Kenny Kan	Mech. Eng	7
Jan Coetzer	M.Dip Tech	11
Hendrik van Niekerk	BSc	13
Elna Monte	Developer	15
Johan Vosloo	B. Computer Science	12

Table 3 Additional R&D Resources

10 Timeline for Program Implementation

It is estimated that for meaningful conclusions, the pilot trial will need to run for at least a nine month to one year period. The first stage of the pilot project will be for evaluating various areas as to suitability as identified by "CPUC Study Proposal from US Power". This project will start after meaningful data has been obtained from US Power's proposal and its time

frame will be adjusted to meet the recommendations of US Power's report as well as fit in with necessary funding requirements.

11 Benefits of IMS System

11.1 Summary of Benefits

a) Present day issues resolved with IMS System

Consumers side

- Untimely Blackouts - resolved
- Poor Analysis of Consumption - resolved
- No Discount Options - resolved
- Fixed Billing Tariffs - resolved.
- No Feedback - resolved.
- Poor Outage Identification - resolved
- Poor Conservation Assistance - resolved
- No feedback and general lack of information - resolved
- Often inaccurate billing - resolved

Distributor side

- Unable to Influence Consumer Load Patterns - resolved
- No TOU Metering - resolved
- Poor Load Management - resolved
- Lack of real time system data - resolved
- Poor Tamper Detection - resolved
- Cumbersome Energy & Financial Reconciliation - resolved
- Require Additional Revenue Streams - resolved

b) Philosophy of IMS System

- ✓ INFORMED DECISIONS
Consumers with access to current information, enables the utility to influence consumption's behaviour – which results in good savings.
- ✓ SMART LOAD MANAGEMENT
Reconfigurable Load Groups based on Season, Day of Week and Time of Day– which results in good savings.
- ✓ CONSERVATION
Defer capital expenditure with improved utilization of existing infrastructure– which results in good savings.
- ✓ IMPROVED CASH FLOW
Reduced “Read to Bill” time. Prepayment for consumption, etc. – which results in good savings
- ✓ IMPROVE LEVEL OF SERVICE
Provide mechanism to effectively manage energy usage while increasing communication between utilities and consumers, – which results in good savings

11.2 Unique services provided by IMS System.

- ✓ Summation metering at power distribution points.
- ✓ Remote connection / disconnection of consumers.
- ✓ Remote tamper detection.
- ✓ Prepayment or credit / billing methods of Revenue Collection.
- ✓ Remote Metering of electricity, water & gas.
- ✓ Smart Load control per consumer via remote connect/disconnect of non essential loads.
- ✓ Remote update of tariffs.
- ✓ Outage Detection
- ✓ Time Of Use (TOU) or multi-tariff metering
- ✓ Provide for additional revenue streams